GLOVES ATTACHED BUT REMOVABLE FROM GARMENTS

BACKGROUND OF THE INVENTION

The present invention relates generally to protective garments for use with gloves, for example surgical gowns used with surgical gloves.

Protective garments, such as clean room apparel, coveralls, and gowns, designed to provide barrier protection to a wearer are well known in the art. Such protective garments are used in situations where isolation of a wearer from a particular environment is desirable, or it is desirable to inhibit or retard the passage of hazardous liquids and biological contaminates through the garment to the wearer.

In the medical and health-care industry, particularly with surgical procedures, a primary concern is isolation of the medical practitioner from patient fluids such as blood, saliva, perspiration, etc. Protective garments rely on the barrier properties of the fabrics used in the garments, and on the construction and design of the garment. Openings or seams in the garments may be unsatisfactory, especially if the seams or openings are located in positions where they may be subjected to stress and/or direct contact with the hazardous substances.

Gloves are commonly worn in conjunction with protective garments, particularly in the medical industry. Typically, the gloves are pulled up over the cuff and sleeve of a gown or garment. However, the interface between the glove and the protective garment is an area of concern. For example, a common issue with surgical gloves is glove "roll-down" or slippage resulting from a low frictional interface between the interior side of the glove and the surgical gown sleeve. When the glove rolls down or slips on the sleeve, the wearer is at greater risk of exposure to patient fluids and/or other contaminants.

An additional problem associated with the use of surgical gloves is that as a result of the gloves being pulled up over the cuff and sleeve of the gown, a phenomenon known as "channeling" occurs. That is, the sleeve of the gown is bunched up under the glove due to

the pulling and rolling of the glove up and over the cuff and sleeve. Channels may develop along the wearer's wrist that may provide access to the interior of the gown for patient fluids running down the outside of the sleeve of the gown. Such fluids may enter the channels and work down along the channels between the outer surface of the gown and inner surface of the surgical glove. The fluids may then contaminate the gown cuff, which lies directly against the wearer's wrist or forearm, particularly if the cuff is absorbent or otherwise fluid pervious.

Surgeons and other medical personnel have attempted to address concerns with the glove and gown interface in different ways. For example, it has been a common practice to use adhesive tape wrapped around the glove portion extending over the gown sleeve to prevent channels and roll down of the glove on the sleeve. This approach has drawbacks though. Many of the common adhesives utilized in tapes are subject to attack by water and body fluids and the seal can be broken during a procedure. It has also been known to stretch a rubber band around the glove and sleeve. However, this practice is awkward to implement and difficult to adjust or vary the pressure exerted by the rubber band other than by having a variety of rubber bands of different sizes and tensions available for use.

Thus, a need exists for an improved device and method for providing an effective sealing interface between a glove and sleeve of a protective garment, wherein the device is easily incorporated with the protective garment and economically cost effective to implement and practice.

SUMMARY OF THE INVENTION

Objects and advantages of the invention will be set forth in part in the following description, or may be obvious from the description, or may be learned through practice of the invention.

The present invention provides a protective garment incorporating an effective and economical mechanism for improving the interface area between the sleeves of the garment and a glove pulled over the sleeves. The improvement eliminates the proximal end of the glove from rolling or sliding back down the garment sleeves once the wearer

has pulled the gloves on because the glove is preattached to the sleeve. In this way, the garment according to the invention addresses at least certain of the disadvantages of conventional garments discussed above.

It should be appreciated that, although the present invention has particular usefulness as a surgical gown, the invention is not limited in scope to surgical gowns or the medical industry. The protective garment according to the present invention has wide application and can be used in any instance wherein a protective coverall, gown, robe, etc., is used with gloves. All such uses and garments are contemplated within the scope of the invention.

In an embodiment of the invention, a protective garment is provided having a garment body. The garment may be, for example, a surgical gown, a protective coverall, etc. The garment body includes sleeves, and the sleeves may have a cuff disposed at the distal end thereof. The cuffs may be formed from or include an extensible material, and may be liquid retentive or liquid impervious. In addition to the garment body, a glove is also provided. An adhesive is disposed between one surface of the glove and a surface of the sleeve. The adhesive forms an interface between the glove and the garment body enabling the glove to be removable from the garment body by peeling the glove from the sleeve. An adhesive is selected having properties that enable the glove to be removed from the sleeve without damaging the glove or the garment body.

In one aspect of the invention the interface between the glove and sleeve may consist of at least one continuous ring of the adhesive such that the interface forms a barrier to the flow of liquids into the interior of the protective garment. In another aspect of the invention, the adhesive may be disposed upon one surface in such a manner so that it remains on that surface without migrating to the other surface with which it is contacted.

In another aspect, the present invention is a garment body having at least one sleeve, a glove, and an adhesive disposed upon a surface. The surface may be either an interior surface of the glove, an exterior surface of the sleeve, or both. The adhesive forms an interface between the two surfaces and exhibits sufficient adhesion to remain affixed substantially to the surface to which it is applied while having sufficient strength to enable

donning of the garment without damaging the interface. The glove itself is removable from the garment body by breaking the interface. An adhesive is selected such that it does not cause damage to the surfaces of the glove or garment body, and does not migrate from the surface to which it was applied.

In still another embodiment of the present invention, a surgical gown is provided. The surgical gown is made up of a gown body having two sleeves, a detachable glove associated with each sleeve, and an adhesive disposed upon an inner surface of each glove for attaching the glove to the gown sleeve. The adhesive is sufficiently strong so as to enable donning of the surgical gown without separating the glove from the sleeve. The glove is removable from the sleeve by peeling the glove from the sleeve without damaging the glove, the sleeve, or the gown body.

Embodiments of the protective garment according to the invention are described below in greater detail with reference to the appended figures. These and other objects are achieved by the process disclosed and claimed herein.

BRIEF DESCRIPTION OF THE FIGURES

FIG. 1 is a partial side view of an embodiment of a protective garment according to the present invention;

FIG. 2 is a partial perspective view of a garment sleeve and glove according to an embodiment of the present invention; and

FIG. 3 is an illustration of a process for manufacturing the FIG. 1 and FIG. 2 embodiments.

DETAILED DESCRIPTION OF THE INVENTION

Reference will now be made in detail to one or more examples of the invention depicted in the FIGs. Each example is provided by way of explanation of the invention, and not meant as a limitation. For example, features illustrated or described as part of one embodiment may be used with another embodiment to yield still a different embodiment. Other modifications and variations to the described embodiments are also contemplated within

the scope and spirit of the invention.

FIG. 1 illustrates a protective garment 10 according to the invention. The garment 10 includes a main body portion 12, a neck portion 14, and sleeves 16 (one sleeve shown) attached to the main body portion 12 at a seam 18. The sleeves 16 may alternatively be formed as an integral component with the main body portion 12. Each sleeve 16 may include an upper or proximal end 20, a lower or distal end 22, and an exterior surface 24.

The garment 10 is depicted as a surgical gown for illustrative purposes only. The garment 10 may be any type or style of protective covering that is generally worn about the body and includes sleeves. Such a protective garment 10 has wide application and, while the invention may be useful in medical applications, the invention may be used in any instance where a protective garment such as a coverall, robe, gown, etc. is used. One such additional example would include clean room apparel.

With respect to the garment 10 the terms "lower" or "distal" are used herein to denote features that are closer to the hands of a wearer. The terms "upper" or "proximal" are used to denote features that are closer to the shoulder region of the wearer.

It should be appreciated that the type of fabric or material used for garment 10 is not a limiting factor of the invention. The garment 10 may be made from a multitude of materials, including nonwoven materials suitable for disposable use. For example, gown embodiments of the garment 10 may be made of a stretchable nonwoven material so that the gown is less likely to tear during donning or wearing of the gown. A material particularly well suited for use with the present invention is a three-layer nonwoven polypropylene material known as SMS. "SMS" is an acronym for Spunbond, Meltblown, Spunbond, the process by which the three layers are constructed and then laminated together. See for example U.S. Pat. No. 4,041,203 to Brock et al. One particular advantage is that the SMS material exhibits enhanced fluid barrier characteristics. It should be noted, however, that other nonwovens as well as other materials including wovens, films, foam/film laminates, and combinations thereof may be used to construct the garment of the present invention. It is also contemplated that the garment may be coated with a liquid impervious coating to prevent fluid absorption into the garment material.

Looking back to FIG. 1, it may be seen that the sleeves 16 may incorporate a cuff 26 attached to the distal end 22 thereof. The cuff has a distal end 28 and a proximal end 30. The configuration and materials used in the cuff 26 may vary widely. For example, short, tight-fitting cuffs made from a knitted material may be provided. The cuff 26 may be formed with or without ribs. The cuff may be formed of a liquid repellant material or a liquid retentive material. Cuffs suitable for use with garments according to the present invention are described in U.S. Pat. Nos. 5,594,955 and 5,680,653, both of which are incorporated herein in their entirety for all purposes.

Still looking to FIG. 1 it may be seen that protective garments are frequently used with gloves, such as a surgical glove 32 that is pulled over the hand of the wearer and has a sufficient length so that a portion of the glove 32 overlaps the cuff 26 (if present) and a portion of the sleeve 16. As shown, for example in FIG. 2, an overlapping region 34 is thus established between the glove interior surface and the exterior surface 24 of the sleeve 16 that would include cuff 26 if present. At some position within this overlapping region 34 an interface 36 between the sleeve 16 and the glove 32 is provided. This interface 36 serves to attach the glove 32 to the sleeve 16 and inhibits undesirable fluids or other contaminants from running down the sleeve 16 into the interior of the garment 10. In some embodiments, the interface 36 is liquid resistant and thus deters these fluids and contaminants from entry into the interior of the garment 10. Though the interface 36 may feasibly be located anywhere within the overlapping region 34, in many embodiments it is located at or near an open end 40 of the glove 32 to further minimize the potential for entry of contaminants into the interior of the garment 10. According to one embodiment of the present invention, the glove 32 may be attached or adhered to the sleeve 16, cuff 26, or both. However, for ease of description the glove 32 will be described as being affixed to the sleeve 16.

In any event, the protective garment 10 is manufactured with the glove 32 adhered or otherwise preattached to the protective garment 10 at the interface 36. This configuration eliminates both glove slippage or roll-down and also provides the garment 10 with the desired fluid resistance at the juncture of the garment and the glove. One manner of attaching the glove 32 to the garment 10 is through application of an appropriate adhesive to at least some portion of the overlapping region 34. Thus, when the sleeve 16 and the

glove 32 are contacted, the adhesive itself forms the interface 36. Nonetheless, the manner in which the glove 32 is secured to the sleeve 16 must be one that enables the glove 32 to be removed without damage to the glove 32, sleeve 16, or garment 10. As such, when using an adhesive, to enable damage free detachment of the glove from the garment, an appropriate adhesive is necessary. One such adhesive may comprise a pressure sensitive adhesive capable of adhesion without the formation of irreversible bonds, in the present case between the glove 32 and garment 10.

The placement of the adhesive at the overlapping region 34 may be accomplished by coating, spraying, printing, slot coating, laminating or other known conventional processes. The adhesive may be applied in any number of patterns including but not limited to one or more continuous bands on the interior of the glove, the exterior of the sleeve, or both. It is to be understood that if the garment has cuffs, then the adhesive may be applied to each cuff as well. The term "continuous band" or "bands" is not meant to connote any specific geometric configuration. Many geometric configurations are feasible and will be understood by those skilled in the art to include, for example, circles, ovals, crescents, ribbons, sinusoidal shapes, symmetric and non-symmetric shapes, regular and irregular bounded shapes, etc. If it is desired that the interface 36 be liquid resistant then the adhesive should be applied in some continuous pattern that forms a border around the entire surface of the interior of the glove, the exterior of the sleeve, or both. Such a continuous border would function as a barrier to minimize, deter, or even eliminate the formation of pathways for undesirable fluids or other contaminants to move down the sleeve 16 into the interior of the garment.

As stated above, the garment 10 is designed to have the glove 32 be removable at the discretion of the user. Removal of the glove 32 should not result in damage to the glove 32, the sleeve 16, or the garment 10. Moreover, the adhesive should remain affixed substantially to the surface upon which it was applied. The phrase "remain affixed substantially" or "remain substantially affixed" means simply that the adhesive stays in place upon the surface to which it was applied even after separating the glove from the garment. That is, the mating surface does not itself become adhesive though it may exhibit some residual tackiness.

In some embodiments, this may be an important attribute where adhesive residue is not desirable upon one surface or the other. For example, in a surgical gown, it may be desirable to apply the adhesive solely to the glove 32. A surgeon using a gown of this construct would be supplied with such a garment 10 having the gloves 32 preattached at the interface 36. This configuration would minimize the potential for contamination of the surgeon's hands during donning of the gown. At some point during or after the procedure, the surgeon at his discretion may simply grasp the glove 32 at the distal end 40 and remove it in the normal manner. During removal, the interface 36 would break and the adhesive would remain on the glove surface. The surgeon could remain in the gown and perform other tasks not requiring gloves or could alternatively don other gloves without concern that the gown sleeves had picked up adhesive residue from the formerly preattached gloves. Moreover, removal of the preattached gloves would not damage the gown or gown sleeve in a way that made the gown unusable for the purpose it was designed.

Numerous techniques exist to attach the glove 32 to the garment sleeve 16. One such technique that has proven satisfactory in the present invention is explained below and depicted in FIG. 3. The sleeve 16 or cuff 26, having circumferentially extendable regions or gathers, is extended on a form 42 so that the sleeve or cuff is in a stretched or non-gathered configuration. The adhesive is applied to the glove or sleeve over a region 44 that is to be occluded by the glove, the overlapping region 34. The glove is then placed over the extended cuff or sleeve so that the interior surface of the glove contacts and adheres to the exterior region of the sleeve. The now joined glove and sleeve assembly may next be attached to the garment in the event that the sleeve is not integral to the garment or in the event that the sleeve has not yet been attached to the garment.

EXAMPLES

The attachment of the glove to the gown sleeve must be reversible, in the sense that no damage is caused by removing the glove from sleeve. To determine ranges of acceptable reversible glove to gown attachment, the observed performance of removing various gloves attached to gown sleeves was correlated to quantifiable measurements for the adhesion between certain adhesive coated substrates and stainless steel and for adhesion between one of the certain adhesive coated substrates and films used to make the various gloves supported on stainless steel. In this way, adhesives that show quantified measurements of adhesion similar to those values giving too little or too much glove to attachment gown attachment can be excluded from further consideration.

Suitable procedures to measure the adhesion of the glove to gown attachment are based upon ASTM Standard 3330/D 3330M-02. While this ASTM Standard is most commonly used for measuring the peel adhesion of pressure-sensitive tapes to specified test panels, it may also be used to measure the peel adhesion of other materials. The Standard defines specific Test Methods for measuring peel adhesion of tape, of which Test Method A, C and D, as written and with modifications, are of interest for determining appropriate ranges of adhesion of the glove from the sleeve per this invention. The procedures based on these ASTM 3330 Test Methods were used to determine (measure) appropriate levels of attachment and separation (peel adhesion). The measurements from these procedures provide information consistent with the ASTM Test Methods in that they show the relative bond strength to various surfaces, and they show the force required to separate materials of specified dimensions at specified peel rates.

Like the ASTM 3330 Test Methods A, C, and D, the procedures measure a peel strength (grams force per inch width) to separate an adhesive coated substrate (e.g. tape) from another substrate at a 180° angle when the contact between the materials occurs over a 1-inch width. The contact is formed between a 1-inch wide strip and another material when the strip is placed in contact with the other material in the form of a test panel with dimensions of at least 2 inches by 5 inches, e.g. a smooth stainless steel plate, or another substrate of interest adhered to such a plate. Attachment between the strip and test panel

substrates is "standardized" by rolling a 4.5 pound rubber coated roller on top of the strip that is in contact with the test panel lengthwise. Other commonalities between the procedures for measuring peel strengths and the ASTM 3330 Test Methods include:

- The speed of separation (180° apart) of the strip from the test panel = 12 inches per minute
- Linear contact of the strip against the test panel at the start of strength data collection = at least 4 inches
- Specification of Dwell Time, the time between adhesion and testing. Peel strengths were measured for two Dwell Time conditions in order to access the difference in adhesion for conditions of:
  - Not Aged = 5 to 10 minutes
  - Aged = 50+ hours

  (Dwell Time may have considerable impact on strength values; conventionally, peel strengths begin to measurably increase after a Dwell Time of one hour but level off close to maximum values after approximately twenty four (24) hours.)
- Repetitive Specimen Testing = 2 to 8 depending on sample
- Peel Strengths = calculated average of "real-time" strengths recorded over 2 inch span after 1 inch of separation has occurred between the strip and substrate.

In general, the test procedures followed the steps set forth in ASTM-3330 Test Methods with the exception that the 4.5 pound roller was passed lengthwise over the top of the strip and test panel once, rather than two passes.

Individual specimen measurements for each sample were then averaged and standard deviations and resulting coefficients of variation (COV %) determined using generally accepted statistical analyses for reporting purposes.

Two types of procedures, Procedures 1 and 2, were used to determine quantified measurements of adhesion expressed as peel strength. Procedure 1 measured peel strengths between selected pressure sensitive adhesive tapes to stainless steel. Procedure 2 measured peel strengths between glove films and a pressure sensitive adhesive tape observed to allow for reversible glove to gown attachment under certain conditions.

Three adhesive tapes were found to be representative of the possible types of glove to gown attachment: reversible, too little, or too much. These adhesive tapes, identified in Table 1, were formed into 1-inch wide strips, adhered to stainless steel test panels and tested according to Procedure 1. Procedure 1 follows the steps of ASTM 3330 Test Method A when using single-coated tape strips and Test Method C when using double-coated tape strips, with the previously mentioned exception (single pass of the roller to standardized strip to steel attachment) for attaching to stainless steel test panels. The peel strengths between these tape strips and the stainless steel test panel were measured under Not Aged Dwell Time conditions. Table 1 reports an average in peel strengths for each group of Test Set specimens with the coefficient of variation (COV %) value expressing the variability among the repetitions:

Test Set	Tape	Description	Dwell Time	Peel Strength Averages (No. of repetitions), gm/inch	COV, %
1	1	Press'n Seal* sealable plastic wrap	Not Aged	55 (8)	60
2	2	Scotch* Double Coated 665	Not Aged	641 (4)	13
3	3	Nashua 398 Duct tape	Not Aged	2327 (4)	12

TABLE 1

Since the double-coated tape identified as Tape 2 in Table 1 was observed to give reversible glove to gown attachment for some but not all conditions (including glove types and age of attachment) it was selected for further peel strength testing. Procedure 2 was followed to measure peel strengths between various glove films and Tape 2 for both Not Aged and Aged Dwell Times. Procedure 2 follows similar steps as those specified in ASTM 3330 Test Method A, previously described, and Test Method D which measures the adherence of "release liner" to adhesive tape.

Specifically in Procedure 2, films from various gloves were cut into 1-inch wide strips and adhered to a test panel substrate consisting of Tape 2. In preparing the test panel substrates, Tape 2 strips were aligned on the steel plates either in the direction to the peel (Vertical) or orthogonally (Horizontal) to assess the importance of adhesive orientation. The orthogonal arrangement was used to simulate the arrangement of adhesive tapes as used in determining glove to gown performance observations.

Three films were selected to represent the typical range commonly used disposable gloves; these are identified as:

- NRL = natural rubber film from Kimberly-Clark* SAFESKIN* PF Powder-free Latex Surgical Glove (stock code 54460)
- Vinyl = vinyl film from Kimberly-Clark* Safeskin* Synthetic Powder-Free Exam Glove (Vinyl Powder-free; stock code 55032)
- HDPE = High Density Polyethylene 0.6 mil film

The peel strength values between these glove films and the Tape 2 test panel substrates using Not Aged and Aged Dwell Time conditions are reported in Table 2. These values are averages of individual results among each Test Set group with the coefficient of variation (COV %) value expressing the variability among the repetitions with procedures were modified to quantify the adhesion of glove films to adhesive tape.

Test Set	Film on Tape 2	Tape Alignment	Dwell Time	Peel Strength Averages (No. of repetitions), gm/inch	COV, %
4	NRL	Vertical	Not Aged	54 (2)	22
5	NRL	Horizontal	Not Aged	99 (2)	4
6	NRL	Horizontal	Aged	317 (5)	8
7	Vinyl	Vertical	Not Aged	173 (2)	37
8	Vinyl	Horizontal	Not Aged	100 (2)	8
9	Vinyl	Horizontal	Aged	594 (4)	32
10	HDPE	Vertical	Not Aged	394 (2)	3
11	HDPE	Horizontal	Not Aged	550 (2)	34

TABLE 2

The results show the similarities in averaged values for the NRL and Vinyl glove films versus the HDPE film and the impact of aging -- at least a 3-fold increase in Peel Strengths for Aged adhesion conditions.

The actual performance with respect to reversible glove to gown attachment was observed for adhesive and glove combinations using the glove materials identified in Table 2 and various materials for adhesive attachment. These materials, either adhesive tapes or stretchable wraps with high friction surfaces are identified as:

- Tapes 1, 2, or 3 as described in Table 1
- Wrap 1 = J&J's Hurt-Free* Tape; consisting of stretchable wrap coated with a

surface modifier to produce a high friction surface and limited adherence to itself but without observable adhesion to glove films or gown fabrics (as described in U.S. patent 5,503,908).

- Wrap 2 = 3M's NEXCARE* Adhering Wrap; consisting of stretchable wrap coated with a surface modifier to produce a high friction surface similar to Wrap 1 that also adheres to itself but without observable adhesion to glove films or gown fabrics.

Glove to gown attachment systems were made using various combinations of gloves and adhesive materials in order to determine those with satisfactory reversible attachment. The gloves identified in Table 2 were attached to sleeves using the above attachment materials in the following sequential manner:

1. The woven cuff of the sleeve of a large ULTRA* Surgical Gown (stock # 95111) available from Kimberly-Clark Corporation was extended on a mandrel having a 9.25-inch circumference
2. The attachment strips were attached to the extended gown cuff to form a ~1-inch wide band near the edge of the gown cuff. (Attachment to the gown cuff was achieved via Scotch* 665 double coated tape when the material to gown cuff interface lacked adhesive properties).
3. Each selected glove was placed over the gown cuff and respective attachment strip for a specified Dwell Time of Aged or Not Aged conditions.
4. The glove attached to the gown cuff was removed from the mandrel after the specified Dwell Time and allowed to reach an equilibrium dimensional condition (the use of non-elastic tapes deterred complete retraction of the glove to gown cuff interface to the initial gown or glove cuff dimensions).

With the glove to gown cuff interface established, both the gown and the attached glove were donned in one continuous motion of the arm with performance observations recorded in Table 3. Depending on the success of donning both the gown and glove without the glove detaching, the reversible nature of the attachment was categorized as acceptable (= Yes) when glove removal was not hindered, or not acceptable (= No) when the glove was difficult to remove or the glove tore.

Test Set	Glove/ Attachment Strip	Dwell Time	Acceptable Donning	Acceptable Removal
12	NRL / Tape 2	Not Aged	Yes	Yes
13	NRL / Tape 2	Aged	Yes	No (difficult)
14	NRL / Tape 3	Not Aged	Yes	No (glove tore)
15	NRL / Tape 1	Not Aged	No	---
16	NRL / Wrap 1	Not Aged	No	---
17	NRL / Wrap 2	Not Aged	No	---
18	Vinyl / Tape 2	Not Aged	Yes	Yes
19	Vinyl / Wrap 1	Not Aged	No	---
20	Vinyl / Wrap 2	Not Aged	No	---
21	HDPE / Tape 2	Not Aged	Yes	Yes
22	HDPE / Wrap 1	Not Aged	No	---
23	HDPE / Wrap 2	Not Aged	No	---

TABLE 3

Correlation of performance to peel strengths

- The unacceptable donning performance of gloves attached to gown sleeves via Wraps 1 & 2 and Tape 1 is attributed to these materials inadequate adhesion properties. Given Tape 1's range of Not Aged Peel Strengths which averaged 55 gm/inch with 60% COV per Table 1, attachment strips with less than 100 gm/inch peel strength attachment to stainless steel plates characterize insufficient adhesion for maintaining glove attachment to gown sleeves per the invention.
- The unacceptable performance observed in removing gloves attached with Tape 3 to gown sleeves is attributed to "aggressive" adhesion attributes. Given Tape 3's Not Aged Peel Strengths which averaged 2327 gm/inch with 12% COV per Table 1, attachment strips with greater than 2000 gm/inch peel strength attachment to stainless steel plates are inappropriate for allowing the reversible attachment aspect of the invention.
- Acceptable pressure sensitive adhesives for utility in the invention have average Peel Strengths within the range of about 100 to 2000 gm/inch with respect to stainless steel. The pressure sensitive adhesive of Tape 2 exhibits such acceptable Not Aged Peel Strength values which averaged 641 gm/inch with 13% COV per Table 1. Based on this adhesive's performance to glove films, peel strength values for the invention's acceptable attachment can further be characterized as ranging from 40 to 290 gm/inch with respect to glove films.

Accordingly, while this invention has been described by reference to certain specific embodiments and examples, it will be understood that this invention is capable of further modifications. This application is, therefore, intended to cover any variations, uses or adaptations of the invention following the general principles thereof, and including such departures from the present disclosure as come within known or customary practice in the art to which this invention pertains and fall within the limits of the appended claims.